The Interspecies Newsletter

Spring 1998

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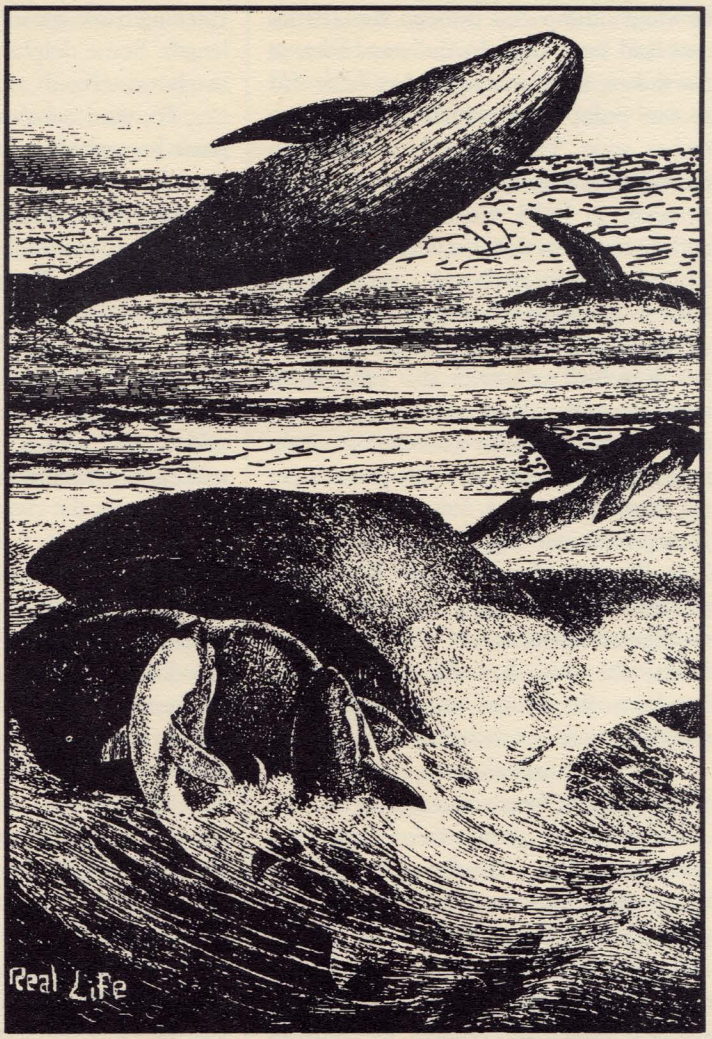
A Whale Primer



This issue is dedicated to cetacean taxonomy and ethology, although this focus has been strained through the usual IC filter of myth and iconology. I present this roll call of species and behaviors in the sincere hope of granting you, our readers, a reality check to balance all the curious claims and fervid desires that so often spring up along the charged border where human nature meets whales and dolphins. In a different form, this essay appears in my next book, also called The Charged Border: Where Human Nature Meets Whales and Dolphins, *to be published next winter by Henry Holt.*

–Jim Nollman, Feb. 98

Cetaceans are air-breathing sea mammals who bear their young alive, suckle them, and maintain a constant body temperature. Their anatomy and physiology are splendidly adapted for a life spent entirely in water. Stability and propulsion are provided by flippers as well as by fibrous, horizontally flattened tail flukes. Unlike all other sea mammals including seals, walrus, manatees, and dugongs, only cetaceans possess one or two blowholes on the top of the head to facilitate breathing while swimming.

Archaeocetes, the earliest known cetaceans, appeared about fifty million years ago. They were about the size of modern porpoises, with teeth and nostrils located halfway between their snout end and the top of their head. Fossils discovered in Louisiana in 1832 displayed much more of the remarkable specialization of modern-day cetaceans. Deposited in the Eocene, forty-five million years ago, Basilosaurus, (king of the reptiles) was a long snake-like creature originally believed to offer proof of the existence of sea serpents. As more fossils emerged in the Deep South, an astute biologist realized that this so-called king of reptiles was actually a sea mammal. He renamed it Zeuglodon (yoke-shaped teeth). Up to seventy feet in length, the animal possessed a distinct beak, a mouth full of large teeth, a small head, and an elongated body like a bottlenose dolphin stretched three or four times its length. Eliminate the teeth and foreshorten the body, and Zeuglodon resembles the members of the modern, but relic, cetacean genus, mesoplodon.

Scientists recognize two suborders of living cetaceans. The mysticetes or whalebone whales have one or two blowholes and possess up to eight hundred plates of baleen rooted in the gums of the upper jaw. The humpbacks who sing so evocatively are mysticetes, as are right whales, bowheads, fin whales and minkes. A species so rare that any documented observation of a free-swimming individual would represent a significant contribution to the scanty knowledge of its behavior, the pygmy right whale is the smallest mysticete at "just" twenty-one feet.

The blue whale is the largest, a creature now so rare, and yet so enormous that it nearly achieves the mythic status of a dinosaur. It's vulnerability and great size hint of a fate akin to the Tower of Babel where overreaching architecture and human ambition led to disaster. But key aspects of the Biblical analogy are reversed. Mankind creates Babel, God destroys it. God creates the whale, mankind destroys it. This asymmetry is troubling. If the blue

whale's current plight were somehow appended onto the allegory of Babel, one might imagine rabbis and preachers explaining the revised tale as mankind's revenge against the God of Abraham for the affronts of Genesis.

To say the blue whale attains great size does not tell the half of it. A common metaphor writers use to grant a context to this largest cetacean describes a child crawling unimpeded through the arteries that lead from Leviathan's heart. Even at the flukes, sixty or seventy feet from this six-ton pump, the arteries are still four inches wide. The largest blue whale on record was a female harpooned in the Antarctic in 1928, measuring a hundred and six feet, with a weight later estimated at a hundred and sixty five tons, or about the same as twenty five hundred average-sized women. As a baby, this whale consumed five hundred gallons a day of a fishy-smelling milk richer in fat than heavy cream, resulting in an astonishing weight gain of two hundred and fifty pounds per day during the first few weeks of life. Biologist Roger Payne has noted that because this female was the most prodigious individual of the most prodigious species ever to inhabit the Earth, she was also the biggest living organism for which we have evidence anywhere in the universe.

By all measures a remarkable individual, this female succumbed to a fate common to the great whales during the twentieth century. Harpooned, her innards burst from an explosive charge, she probably bled to death. The vast gut was inflated with compressed air to keep her carcass afloat. Winched onto a platform, she was measured, flensed, her blubber dumped into a cooker to be boiled for oil. Flesh, entrails and sinew were separated into separate mounds for processing. What remained, including that unimaginable skeleton and inscrutable brain were cast back into the ocean within hours of her first sighting by a Norwegian catcher boat.

Toothed Whales

The odontocetes or toothed whales are anatomically and behaviorally quite different from the baleen whales. All toothed whales have brains that approach—and in a number of cases surpass—the size of our own. They possess a single blowhole located behind the eyes, although in the sperm whale it is placed distinctly left of center. Most species band together in highly organized groups called pods. The sub-order includes orcas, dolphins, porpoises, belugas. The narwhal has only one tooth, evolved into a fantastic spiraling tusk growing to eight feet in length. Some dolphin species have up to two hundred teeth.

Toothed whales belonging to the genus mesoplodon or beaked whales are so rare that some species have never been observed alive, and identified only from one or two rotting carcasses cast upon remote beaches. The various species range between nine and twenty-four feet in length. They all have beaks like bottlenose dolphins, although none of them possesses the outsized forehead "melon". These seldom-seen whales possess two outsized tusks jutting from their lower jaw, granting some species the visage of whales depicted on old sea charts. It is postulated that the tusks evolved to keep slippery squid from sliding out of their mouths. The triangular tusks of the dense-beaked whale erupt mid-way down the length the jaw, causing them to protrude above the eye. Those of the straptooth whale attain a length of twelve inches, curving over the upper jaw until they form an arch.

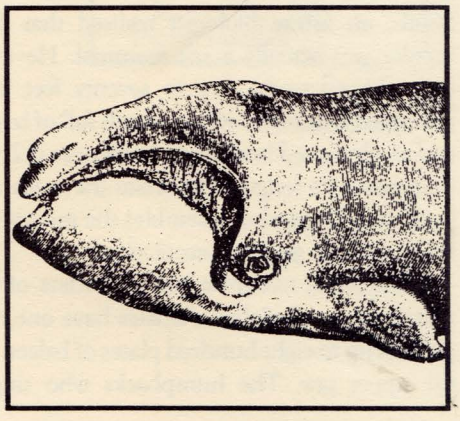
Mesoplodon demographics are sketchy. For years, the scamperdown whale was known only from a few strandings in New Zealand waters. Then a single animal washed ashore halfway around the world in the Netherlands. Strandings of another species, the dense-beaked whale, have occurred in New Jersey, Madeira, South Africa, Taiwan, Seychelles, Midway island, and Queensland Australia. Despite this farflung distribution, cetologist D.W. Rice speaks for the vast majority of biologists when he writes:

In the course of whale research cruises in the eastern North Pacific totalling some five hundred days at sea during the past twenty years, I have never identified a mesoplodon.

Even pronunciation of the genus name is uncertain, alternately pronounced mes-a-PLOE-don or mes-AWE-plo-don. The species are divided between those with descriptive names—scamperdown whale, gulfstream whale, deepcrested whale, strap-tooth whale, dense beaked whale—and those receiving the name of the marine biologist who first identified them (and incidentally providing a roll call of the luminaries of historical cetology): Hubbs whale, Sowerby's whale, Stejneger's whale, True's whale, Hector's whale. Until a stranding in 1980, this last species was known only from skeletal evidence.

The most discouraging story I know of human beings interacting with cetaceans, involves a mesoplodon. On a September afternoon in 1957, a cetacean was sighted by boys playing baseball at Osio beach near Tokyo. The whale swam in the shallow, muddy water appearing as if it was trying to decide to strand. When it finally hit bottom, the boys quit their game and walked down to the water to take a closer look. One might imagine the boys chattering among themselves as they scrutinized the outsized flukes, and the flagon-shaped head with its small, pig-eyes. Two fan-shaped tusks erupted upward from either side of the mouth, giving the creature the look—not of a *real* whale—but of a mythical sea creature. The boys might have stood there awhile, in awe and humility over this fifteen foot creature cast up before their feet. Perhaps one boy finally gathered up enough courage to step alongside the creature to run a hand along the silky grey-black skin.

As it was, the boys did none of these things. They ran back to the baseball field, grabbed baseball bats, and bludgeoned the whale to death.



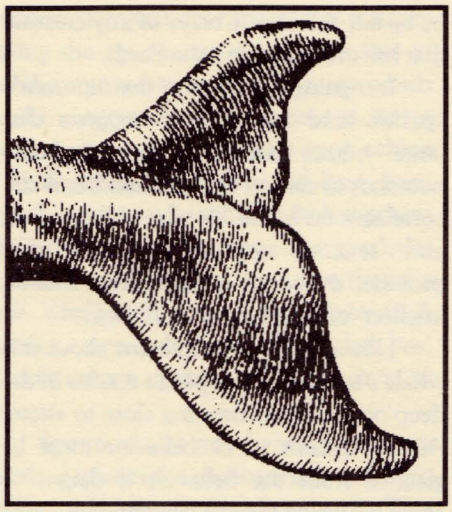
Japan's preeminent marine biologist, M. Nishiwaki, was on the scene the next morning. He was astounded to realize that the flattened tusks of the bloody carcass did not agree with those of any known mesoplodon. He later wrote, "I ventured to settle a new species for this specimen", he concluded, "and nominated it as *Mesoplodon Ginkgodens* after the way the fan-shaped teeth, which proved to be the only two the animal possessed, closely resembled the leaf of a gingko tree." In the years since that bludgeoning and subsequent christening, ten other gingko-toothed whales have been identified by human beings. All were found decomposing on beaches along the Pacific rim.

Delphinids

The smallest toothed whales, dolphins and porpoises, are grouped together as *delphinids*. The distinction between the two (and between them and the whales as well) is more a mystery of language than anatomy, which is why explaining it sounds so much like an Abbott and Costello comedy routine. The smaller, blunter-nosed delphinids are usually referred to as porpoises. Their smiling, beak-nosed cousins are dolphins. However, many people, including many marine biologists, refer to both groups as either porpoises or dolphins. Pilot whales and killer whales (orcas) are actually dolphins and if accuracy of nomenclature mattered, we should probably refer to them as pilot dolphins and killer dolphins. The beluga whale looks and acts as much like a delphinid as any orca, but marine biologists do not consider it a delphinid.

Size can distinguish whales from dolphins. The bottlenose *whale* is thirty-five feet long and resembles the bottlenose *dolphin* in every respect but size. The sperm whale also has a miniature cousin, the eight foot long *Kogia simus*. But this is commonly known as the dwarf sperm whale, and never as a sperm dolphin.

Altogether there are forty-three species of *delphinids*, which are further divided into five sub-groups based on shape, habitat, and size. The first sub-group includes the



largest dolphins, pseudorcas, orcas, pilot whales, pygmy killer whales, melon-headed dolphins, and grampus. Beakless, they all attain ten feet or more in length. The second sub-group includes the true porpoises, none of which grow longer than eight feet. The smallest, at five feet, is the vaquita, a shy creature that resides only in the upper reaches of the Sea of Cortez, and is fast approaching extinction as an incidental catch of a net fishery for sharks and sea bass. The third sub-group includes all the species *called* dolphins but which resemble porpoises. None have beaks. The northern right whale dolphin has no dorsal fin. It's flukes are no wider than its body granting the animal a vague resemblance to an eel (or a miniature Basilosaurus). As might be expected, there is also a southern right whale dolphin.

The next sub-group, the river dolphins, live their entire lives in fresh water. They all have long beaks, outsized forehead melons, tiny eye cavities, and fan-shaped pectorals. Despite the family resemblance, their distribution is both exceedingly localized and yet farflung. The Amazon River dolphin, called *boutu*, is bright pink. Although threatened, it's body parts are sold in local markets as talismans. Both the Indus River dolphin, *susu*, and the Ganges river dolphin (with no cute nickname) are splendidly adapted to life in muddy water. They are completely blind and are the only cetaceans known to echolocate in two separate beams. The former is on the verge of extinction due to habitat loss. The Chinese River dolphin or *baiji* once lived in China's largest lake, which fed the Yangtse River. The animal survived the pressure of human population growth for centuries because locals believed the animal descended from a princess who flung herself into the lake long ago. When the river was dammed and the lake silted up, the *baiji* escaped into the Yangtse where it came in contact with people not so predisposed to treat it as a princess. Now a valiant international effort is underway to protect it. The so-called Irawaddy river dolphin is not a river dolphin at all, but an oceanic porpoise favoring that river's delta.

The last sub-group contains all the species most people envision when they hear the word, *dolphin*. These true dolphins are distinguished by beaks, smiles, low-slung melons, and sharp dorsal fins. They reside in every ocean although restricted to tropical and temperate waters. The bottlenose dolphin is the largest, attaining nearly fourteen feet. The common dolphin possesses the group's most beautiful markings, with golden hour glasses running along each side. The spotted dolphin is dappled, the striped dolphin has four sumptuous pinstripes flowing from its eyes to its genital slit. To add to the confusion, there is a popular game fish called a dolphin (mahi mahi).

A bottlenose dolphin was clocked swimming fifteen miles per hour and there are many reports of the species bow-riding motor boats at a much faster pace. The Dall porpoise, a small white-and-black look-alike to the orca with whom it shares Northwest coast waters, is considered the fastest cetacean, capable of bursts of thirty-five miles an hour.

Until recently, scientists believed it was physically impossible for delphinids to swim that fast given the immense resistance of water. The basic hydrodynamic principle of *laminar flow* explains it. Water moving past a streamlined object is held by the surface of that object so that water flows against water, not against solid. It is calculated that a dolphin attaining fifteen knots develops a quarter horsepower to overcome the resistence of water, or about the same power needed by a human being to climb uphill at five mph. Without laminar flow, the dolphin would

need two horsepower to attain the same speed.

As the blue whale, the pygmy right whale, the boutu, susu, and vaquita all suggest, many cetacean species are rare and/or endangered. There is also a good chance that species swim in the ocean today that have never been seen, or at least identified by human beings. In November 1978, cetologists working the whale grounds off Chile, made eight separate sitings of small whales they could not identify. The animals were odontocetes, beakless, twenty feet long, with light-colored heads and dark bodies, traveling in a pod of approximately fifteen animals. The observers noted that the animals resembled *grampus griseus*, Risso's dolphins, although they were at least eight feet longer than any of that species yet identified. Intriguingly, the sketchy details we have of sitings closely match similar unidentified animals observed farther south by a cetologist in 1905.

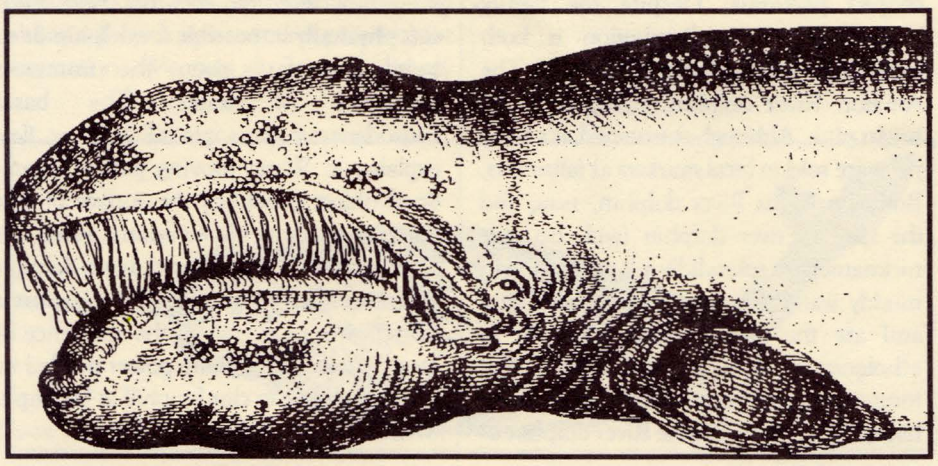
Sperm Whale

The sperm whale is the largest odontocete. Whale encyclopedist, Richard Ellis notes that, more than any other species, this species "comes to mind when the word *whale* is mentioned." The size of this whale's heart may be no match to the mighty blue's, nor does it's blunt sausage-shaped face offer much competition to the dolphin's beatific grin. But it possesses its own remarkable organ, a seventeen pound brain, five times as large, and far more convoluted than the human brain. It is, by far, the largest brain of any creature that has ever inhabited the Earth.

Intriguingly, studies of the dinosaur's sparrow-sized brain cavity suggests that large brains are not fundamentally necessary to control large bodies. Brain size correlates far more closely with intellect and sensory apparatus. Given that promise, the terms of the sperm whale's intellect remains largely unknown.

How do we begin to learn about this whale's intellect? The species resides in the deep ocean, rarely drawing close to shore. All we discern of its behavior must be gleaned from the behavior it deigns to show us during the five percent of the time it comes to the surface to take a breath. It was whalers who first observed that females with young and the much larger breeding males make up distinct social groups called pods. These sexually-delineated pods come together only for mating and spend the rest of the year otherwise separated by the distance of oceans.

Some whale aficionados have speculated with science-fiction abandon, that five times the brain potentially indicates five times the mind. If so, our capacity to test the claim is forever thwarted by a barrier even more formidable than this species deep ocean habitat. Gödel's theorem stipulates that a smaller processor can never map the capabilities of a larger processor. In other words, if the sperm whale does possess a five-fold intellect, then the human mind is too puny an instrument to confirm it. Nothing within the sperm whale's sketchy repertoire of behavior can ever verify that the premise is either true or false.



The extent of our ignorance can be amply demonstrated by the fact that until recently humans related to this potential wisdom keeper only as a repository for oil. A unique oily/waxy substance found in the "case" located in the species forehead, was most special, the finest grade of machine oil known to man. Known as *spermaceti*, "the seed of the cetacean", this fluid was erroneously purported to be the whale's own seminal fluid. During the 19th century, the hunt for spermaceti subsided only after there were too few whales left to finance more hunts.

This "seed of the cetacean" is more accurately understood as the seed of the Industrial Revolution. Engineers employed it to lubricate the new machines that defined that age while the less-exalted whale oil was used in lamps to illuminate the darkness. Today, we find an adequate replacement for spermaceti in a common desert plant known as jojoba.

Prior to feeding, the sperm whale rolls across the surface several times to take a succession of deep breaths, arches its body, lift its flukes high into the air, and starts a steep descent. How deep do they dive? A whale was once caught whose stomach was filled with several freshly consumed, bottom-dwelling sharks at a site with a known depth of 10,476 feet. There are fourteen instance of sperm whale carcasses found wrapped up in transatlantic cables, one of them on the ocean bottom at a depth of 7200 feet.

To move about in total darkness, toothed whales have developed an echolocation or sonar system based on clicks. In fact, the spermaceti-filled "case" located in the species' forehead, is nature's most sensitive acoustic lens used to focus bursts of echolocation clicks. Spermaceti is twice as effective as a conductor of sound as the oil from another known echolocator, the bottlenose dolphin.

How does echolocation work? The whale concentrates a series of sound waves (clicks) into a beam which echo off any object in its path. The distance a click must travel before echoing, as well as the clarity of the echo itself, varies depending on the density of the object: whether it's composed of soft body tissue, air sacs, bones. The echo returns to the cetacean

where it is received, not only by ears, but also by receptors strung along the lower jaw. The whale's brain is exquisitely tuned to analyse the object, apprehending skeletal structure, three-dimensional shape, internal organs, and movement as easily as you or I see shape.

The bulk of sperm whales' diet consists of squid and fish under three feet long. One animal caught off madeira had 4000 squid mandibles in its stomach. Sperm whales also prey on giant squid, a fact reported by many whalers who observed their monumental surface battles. In his classic of late 19th century whaling, *The Cruise of the Cachalot*, Frank Bullen writes:

A violent commotion in the sea right right where the moon's rays were concentrated...a very large sperm whale was locked in deadly conflict with a cuttle-fish, or squid almost as large as himself, whose interminable tentacles seemed to enlace the whole of his great body. The head of the whale especially seemed a perfect network of writhing arms—naturally, I suppose, for it appeared as if the whale had the tail part of the mollusc in his jaws and, in a business-like methodical way, was sawing through it.

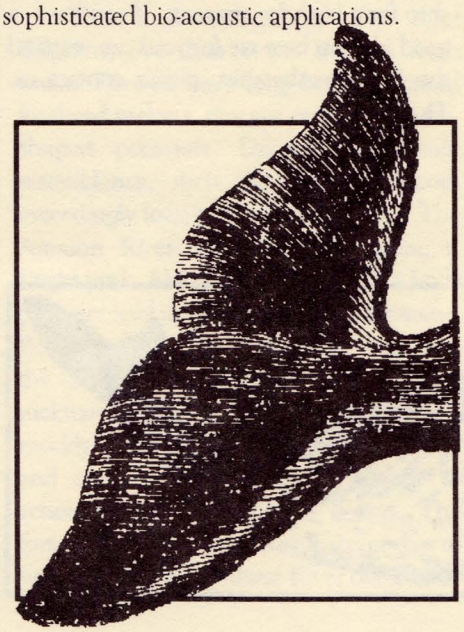
Hunting in the eternal darkness of the abyss, the sperm whale echolocates its prey, and then zooms in for the kill. What happens next is a matter of some dispute among whale experts. Old time whalers believed the animal stayed very still, opening its mouth until the lower jaw hung perpendicularly to the body, and wagging its tongue as a lure. According to Beale:

The white roof of its mouth, the tongue and especially the teeth being of a bright glistening white color, must of course present a remarkable appearance, and which seems to be the incitement by which his prey are attracted.

Sensory zoologist, John Downer, describes sperm whales with such badly disfigured jaws that they could never catch a live prey in this manner, although they are otherwise healthy and well fed. Some biologists explain the discrepancy in terms of altruistic behavior observed among several odontocete species. In other words, podmates are feeding their crippled relation. Downer speculates that muscles lining the spermaceti case are capable of producing massive air pressure, which could conceivably be concentrated into a sonic beam with an intensity approaching 256 decibels. Fish and squid have been killed in minutes by volumes far less potent than this. Downer believes sperm whales aim their sonic weapons and then fire off a few whale-sized cracks and booms. A hunter, even one with a mangled jaw, simply scoops up the prey and feeds at its leisure.

Sperm whales may be unique among toothed whales for clicking back and forth to one another as well as at objects. This practice sparks a growing speculation that this species uses echolocation in a social, signaling context, transmitting kinetic images to one another much as we do with movie cameras, although the three-dimensional signals more closely resemble holograms or holosonics than flat pictures.

If true, it implies a sperm whale spoken language nearly beyond our ability to conceive. Imagine two whales recollecting recent events by transmitting fully fleshed-out scenes back and forth to one another through a medium vaguely analogous to the three-dimensional environments found on the holodeck lounge in the *Startrek* TV series. As anyone familiar with digital audio knows, acoustic information is a processor and storage-intensive task. Some bio-acousticians hypothesize that the sperm whale's large brain developed specifically to exploit these sophisticated bio-acoustic applications.



IC NEWS

Utne Reader

The editor of this newsletter, Jim Nollman has the cover story in the April 1998 issue of the Utne Reader. Entitled, *The Secret Language of the Wild*, the essay develops alongside a series of shorter essays by several writers, including Deena Metzger, Cathy Madison, and Temple Grandin, all on the subject of human/animal relations. Nollman's essay is based on a longer piece that originally appeared in the Winter 1995 Interspecies newsletter, entitled: *Who Communicates?* Here's a pertinent excerpt from the magazine, by autistic animal consultant, Temple Grandin:

Language-based thought is foreign to me. All my thoughts are full-color motion picture, running like a viedotape in my imagination. It was always obvious to me that cattle and other animals also think in pictures. I have learned that some people mainly think in words and I have observed that these verbal thinkers are more likely to deny animals' thought; they are unable to imagine thought without words.

Two Grants

IC has received two significant art grants these past few months. The first, from a private donor, supports Daniel Dancer in his *ZeroCircles Project*, which we reported in the last newsletter. Dancer's grant allows him to travel to fifty different national forests within the USA, this year, to create fifty unique circles from materials found on each site, and signifying the number zero. Working with a publicist, Dancer's traveling statement will naturally accrue much media, bringing national attention to a program supported by many environmental groups including the Sierra Club, promoting a zero cut of trees in all our national forests. This blend of art and environmental activism is precisely what IC is about.

The second series of grants originated from corporate sponsors within Japan who

encourage efforts to promote living whales within that country. The original grant came to IC through the pro-whale group, ICERC–Japan, and has since been matched by private donors in the USA and Switzerland.

ICERC originally commissioned Jim Nollman to carve a whale totem to serve as the centerpiece and logo for their upcoming international conference being held in Tokyo this April. Nollman actually built them a giant wooden drum which can be played by two people at once. The musical instrument is elaborately carved with a sperm whale on one side echolocating a giant squid on the other side. It is inlaid with fossils, coral, and beads. Nollman will play the drum at the opening ceremony of the conference, accompanying Takashi Tsumura, one of Japan's foremost Buddhist chanters. He will also present a talk about the art and science of interspecies communication with whales and dolphins.

IC Wish List

We still seek a high quality laptop computer with audio software to facilitate our rapport with whales out on the ocean. Linked into our underwater sound system, the computer will allow us to communicate with whales within the digital realm, offering many new and provocative possibilities for future interspecies interaction.

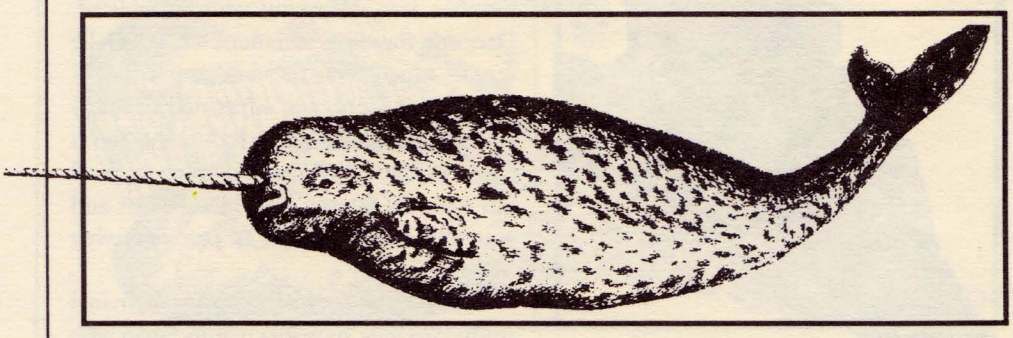
For one example, we can sample whale sounds, then manipulate them subtly by several different parameters, and finally rebroadcast them into the water. We feel quite strongly that this sampling ability will open up a vast new potential for interaction. We can also record directly into the computer and then broadcast the result onto the internet. A laptop also gives us full access to the vast realm of MIDI sounds, including those made by whales. And lastly, we can link to a cell phone which conceivably allows musicians from anywhere in the world, to interact directly with the same whales.

We are now actively seeking either an IBM 770 laptop or a Macintosh G7 powerbook. For software, we need a MIDI sequencer like *Performer*, sound editing software like *Sound Forge*, and multimedia software like *Director*. Please help us if you can. And remember, all donations are tax deductible.

Membership

Something wonderfully positive is happening to this organization, and it seems well worth sharing to readers of this newsletter. During the month of January, we received as many new memberships as we received in the first six months of last year. A healthy membership is essential to the continued success of this twenty year old organization because your yearly donation subsidizes all the expenses related to this newsletter as well as covering a meaningful portion of office upkeep.

We need your membership donations to keep coming, so please don't forget to send in yours. And won't you please help us grow IC into a self-supporting entity? Tell a friend to join. Or give a gift membership for a birthday present. If you have a good idea on how we (or you) can expand the IC membership, please contact us. Thanks a lot.



Raven Film

IC director and raven naturalist, Linda Campbell, is the featured human in a recent film about ravens as indicators of Northwest forest habitats in the Queen Charlotte Islands and the San Juan Islands. The film illustrates the longterm impact humans have had with nature in these two locales, as expressed through the metaphor of the raven. Ravens are notoriously intelligent, regarded by several indigenous cultures around the world as a god and trickster. Like humans, ravens are extremely adaptable to altered forest habitat, although at some point they do not flourish. The film not only shows Campbell interacting with ravens, but also includes dramatic footage of white ravens. The film was produced and directed by longtime IC friend, Patricia Sims, and debuted in January over the Japanese Asahi TV network. It will soon become available in video.

Two Reviews

The Book of Waves

Form and Beauty in the Ocean; text by Drew Kampion; Roberts Rinehart Publishers; 1997

Cetacean enthusiasts sometimes forget to take a step back from their admiration to keep sight of the forest for the trees. Inadvertently achieving that goal, Drew Kampion, longtime friend and colleague of IC, has produced a coffeetable book of rare scope and beauty, focused on powerful photos of ocean waves shot around the world. There are waves here to give pause to even the boldest of surfers, waves to break over the hearts and minds of poets, oceanographers, photographers, children, painters, and philosophers of every stripe. There are big waves, little waves, long waves, perfect waves, aberrant waves, deadly waves, waves seen from high

above, shot from underneath, from near, from far, tubular waves looking down the barrel directly at the red sun of dusk. This is a book to give to someone you love, then sit down and pore over the images together.

...the energy released in a breaking wave is tremendous. All that stored wind power–transported silently for so many miles–at last bursts out of its liquid confines with a thunderous roar of liberation.

...Although humans are the most common surfers today, the act of riding waves is an ancient custom for porpoises, seals, sharks, killer whales, and fish and birds of all kinds. Seals and porpoises are terrific surfers; their instinctive familiarity with the liquid medium allows them to be the most subtle and eloquent wave riders of all.

Museletter

A monthly newsletter of cultural renewal; published by Richard Heinberg; 1433 Olivet Rd, Santa Rosa CA 95401; $15 per year

With the advent of desktop publishing software ten years ago, some writers began to explore the one-person "magazine" as a viable publishing option. Heinberg's four page newsletter is not only one of the most profound expressions of this new form, but also one of the least expensive I've come across. Why publish oneself? In Heinberg's case, his growing number of loyal readers means he's doing quite well without a bloated infrastructure. His style seems too trenchant for mainstream newspapers, his savvy linkage is too bold for mainstream magazines, and his subject matter is usually too quirky to ever let him thrive as mainstream pundit. Yet he has an exceptional eye and ear for describing his own search to discover the sacred within the underbelly of modern culture.

One recent issue focused on the connection between gardening and spirit, and another one on the mandatory pain to the earth caused by modern economics. All quotes below are from a conversation between Heinberg and distinguished psychic researcher, Russel Targ, gleaned from the issue in front of me.

..The book [Miracles of the Mind] describes the CIA remote viewing program. For many years this information was highly classified; I was unable to talk about or publish my own research.

...We know from a wide range of recent medical research that when people feel connected to the world around them they tend to be healthier, whereas feelings of isolation and alienation often coincide with illness. The community of spirit is our sense of connection to a wider world. It can refer to family and friends–all the people with whom you have some emotional connection–and also to a wider community that includes consciousnesses that are not necessarily human or physically incarnate. Ultimately it includes the whole universe.

...I'd say the evidence for psychic ability is overwhelming. I agree with the critics that we don't know how it works. But the lack of an explanation does not at all affect the reality of the phenomenon. The data now, for half a century of psychic research in dozens of laboratories is really conclusive. Physicists are beginning to make models of how this works, but there isn't yet a complete description that everyone agrees with.

Final Thoughts

Whistling Bladders

From *Cattlemen Magazine*...

...Someone who used to work at the Calgary Stockyards told me of an old cattle buyer who'd walk among the pens of steers, whistling. Unlike other buyers, he preferred walking among the cattle rather than on the catwalk. Every now and then, he'd get to a certain pen, and hit a certain note for a few seconds, then wander off, only to return to the same pen later on and whistle the same note again.

Curiosity got the better of the worker, and he asked the buyer why the whistling routine? The buyer invited him to come along and watch. When he whistled, be damned if some of the steers didn't pass water. After repeating the routine several more times, pretty well every steer had stretched out and emptied their bladders. Now if a steer was to pass a gallon of urine, that's ten pounds the buyer didn't have to pay for.

–submitted by Jonathan Churcher

Rating Animals

Stephen Kellert is a professor in the forestry department at Yale, who has spent a career developing statistical methods to help politicians rate the inherent value of natural resources. Kellert's system deserves praise for protecting certain species and natural features. However, his method of affixing a rating system to nature as if it were just another movie or restaurant must be recognized as bizarre to the extreme for demonstrating just how disconnected and consumption-oriented our government is in its attitudes towards nature.

Is a mountain view worth more than an ocean view? Does a wolf deserve to live more than a deer? Do citizens strongly like, slightly like, strongly dislike or just slightly dislike turtles and ladybugs? Do more people aged 18-25 living in the north-east slightly like turtles more than people aged 56-65 living in the south slightly dislike ladybugs? Is your own attitude towards wildlife naturalistic, humanistic, moralistic, scientific, aesthetic, utilitarian, dominionistic. Do you slightly dislike or strongly dislike the fact that Kellert's value system is being used to determine the worth of nature?

To learn how our government reduces nature to numbers, read any of Kellert's books published by the US Government Printing Office, especially *Knowledge, Affection, and Basic Attitudes towards Animals in American Society.* (1981)